

ENABLING SECURITY, STABILITY, TRANSITION, AND RECONSTRUCTION OPERATIONS THROUGH KNOWLEDGE MANAGEMENT

BY

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USAWC STRATEGY RESEARCH PROJECT

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OPERATIONS THROUGH KNOWLEDGE MANAGEMENT**

by

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ABSTRACT

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This paper explores knowledge management as a SSTRO enabler and examines the Combined Security Transition Command-Afghanistan (CSTC-A) using the Intelligent Complex Adaptive System (ICAS) Model to demonstrate strategic KM application. Additionally, this paper explores organizational culture as a barrier to KM implementation and identifies strategic leader focus areas for overcoming cultural barriers. Finally, this paper provides recommendations for realizing the strategic utility of KM as part of SSTRO to achieve national security objectives.

ENABLING SECURITY, STABILITY, TRANSITION, AND RECONSTRUCTION OPERATIONS THROUGH KNOWLEDGE MANAGEMENT

The challenges inherent in today's strategic environment amplify the criticality for adaptive and responsive leadership and organizations. Globalization and rapidly diffused information flows tighten global interconnectedness and create the expectation for near instantaneous and decisive action. Strategic leaders face demands for effective and timely analysis and decision-making that juxtapose a host of ill-structured or wicked problems.¹ These unique, crosscutting, and interactively complex problems often require perpetual sets of neither correct nor incorrect cascading solutions. Additionally, leaders and organizations face an external environment characterized as volatile, complex, uncertain and ambiguous (VCUA).² It is an environment requiring innovation, accelerated transformation, pervasive sensing and continual learning. In essence, tumultuousness prevails. The VCUA environment drives rapid external and internal change, decision and resource demands, and evolving missions and strategic foci as leaders and organizations attempt to shape, influence, adapt and respond.

The post-conflict Security, Stability, Transition, and Reconstruction (SSTR) efforts in Iraq and Afghanistan typify strategic operations in tumultuous and VCUA external environments.³ Compounding the substantive challenges inherent in this environment, however, is an equally complex internal environment comprised of multiple organizations collectively responsible for the SSTR mission. As outlined in National Security Presidential Directive-44 (NSPD-44), the Secretary of State has overall responsibility for coordinating, leading and integrating U.S. SSTR efforts across all "U.S. Departments and Agencies with relevant capabilities" and also those of the

nation's coalition partners.⁴ Specific to the U.S. alone and although situationally dependent, these organizations may encompass the Departments of Defense, Treasury, Energy, Agriculture, Commerce, Health and Human Services, Transportation, and Homeland Security, among others. Accomplishing the SSTR mission, thus, requires collaboration, coordination, synchronization, and synthesized execution across an extremely complex network of responsible organizations with differing values, cultures, norms, technologies, policies and goals. Additionally, in-theater organizations characterized by discontinuous membership exacerbate internal challenges through inconsistent ebbs and flows of information, situational awareness, and, most importantly, experience-derived knowledge.⁵ Collectively, this complex multi-organizational construct must effectively address a myriad of SSTR requirements and wicked problems that transcend organizational hierarchies and authorities.⁶

Addressing ill-structured or wicked problems in the context of SSTR efforts requires that the network of responsible organizations build sufficient collaborative and SSTR-specific long-term problem solving capacity.⁷ Building this capacity, in turn, necessitates that leaders and organizations within the network create, acquire or draw upon, and add to a collective SSTR knowledge base through learning. Learning occurs by attempting to structure or address SSTR problems; namely, the “designing” cognitive function of operational art.⁸ Learning also occurs by assessing decision or solution implementation and adjusting based on outcomes. Overall, however, the complex problems themselves often become “the main objects to be dealt with and the driving force behind knowledge acquisition.”⁹ A growing knowledge base, thus, is critical to generating new ideas and fostering innovation and creativity required to address or

structure other, emerging, or future SSTRO problems. In essence, the knowledge created or acquired through addressing SSTRO wicked problems becomes the very resource required to continue effectively doing so.

The efforts by the United States and Coalition partners in Iraq and Afghanistan clearly demonstrate that collaboration, organizational learning, and knowledge sharing are essential elements of post-conflict Security, Stability, Transition and Reconstruction Operations (SSTRO). Specifically, knowledge created and shared within and among responsible organizations enables timely and effective problem solving, decision-making, adaptivity and responsiveness critical to successful SSTRO in VCUA post-conflict environments. As such, knowledge management provides a key strategic SSTRO enabler. Organizational culture, however, poses a major barrier to effective knowledge management employment within and across the U.S. Department of Defense (DOD) and interagency organizations.

The analysis provided herein explores Knowledge Management as a strategic SSTRO enabler and specifically examines the efforts of the Combined Security Transition Command-Afghanistan (CSTC-A) using the Intelligent Complex Adaptive System (ICAS) Model of Knowledge Management. The ICAS model describes how Knowledge Management creates the organizational intelligence necessary for effective and efficient response to the environments characteristic of SSTRO. Accordingly, applying the ICAS model demonstrates the strategic utility of Knowledge Management for SSTRO-tasks DOD and interagency organizations. Implementing Knowledge Management to achieve strategic success, however, necessitates overcoming prohibitive cultural barriers. Considering this, the analysis provided herein also explores

organizational culture as a barrier to knowledge management implementation and use and includes focus areas for overcoming culture-centric obstacles. Finally, the analysis concludes with three recommendations centered on realizing the strategic utility of KM as part of SSTRO and in achieving national security objectives overall.

Analytical Precursors – Learning Organizations and Organizational Knowledge

Successfully accomplishing the SSTR mission necessitates unity of action and effort. The multi-organizational network must effectively function as a whole in addressing SSTRO challenges presented by the external VCUA environment, as well as the wicked problems inherent in the overall SSTR mission. An integral component in achieving this strategic end-state is to establish an internal environment that has the capability and capacity to do so. This is largely possible given three organizational mandates. First, organizations within the network must value collective knowledge creation, sharing, acquisition, and application. Second, organizations within the network must understand how their actions affect both the external and internal environments. Finally, organizations within the network must not only recognize requirements for change, but also have the capacity to effectively and intelligently change based on internal and external drivers. In this context, two critical enabling concepts emerge, specifically Learning Organizations and Knowledge Management. Although the focus of this analysis is on Knowledge Management (KM) as a strategic SSTRO enabler, Learning Organizations and Knowledge Management are synergistic and mutually supportive.¹⁰ Further, Learning Organizations possess or develop a culture of learning, which is a knowledge-centric endeavor, and organizational culture is a significant determiner of KM success.¹¹ As such, briefly exploring certain key aspects of Learning

Organizations as an enabling component of the internal SSTRO environment, as well as KM success, provides a worthwhile backdrop for the follow-on KM analysis herein.

Harvard Business School professor David Garvin (1998) defines a learning organization as “an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights.”¹² In the context of SSTRO and KM, developing a network of learning organizations will help create the required internal environment previously described from three perspectives. First, learning organizations are knowledge-centric and value the creation and sharing of knowledge; learning becomes an important aspect of the overall organizational culture, which, in turn, affects effective KM implementation and use.¹³ Second, learning organizations utilize a systems thinking approach to understand decision and action implications.¹⁴ Organizational and network knowledge is an essential component of systems thinking as it assists in understanding complexity and recognizing high-leverage change.¹⁵ Accordingly, a systems thinking focus has the potential to significantly improve decision-making. Finally, learning organizations seek to adapt or change, including organizational behavior or structure if required, based on the effectiveness of their actions.¹⁶ Faced with an external VCUA environment, adaptivity and agility increase organizational effectiveness and responsiveness. In a complex internal environment, adaptivity and agility better position organizations to embrace change, such as that associated with KM implementation and use.

Exploring Knowledge Management (KM) as a strategic enabler for SSTRO also requires understanding the concept of knowledge in organizations. Thomas Davenport and Laurence Prusak (1998) define knowledge as follows:

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.¹⁷

There is an intuitive understanding that knowledge goes beyond data and information—a type of hierarchy or continuum that builds or moves from data to information to knowledge. Data represents “discrete, objective facts about events.”¹⁸ Although organizationally valuable, data by itself has no meaning. Conversely, adding meaning or value to data, through contextualization, categorization, calculation, correction, and/or condensation, transforms data into information.¹⁹ Information provides increased organizational value over data, and organizations invest heavily in processes and technology tools dedicated to information management. Similar to information, knowledge has meaning, but despite frequent interchangeable use, information and knowledge are not the same. Unlike information, knowledge “is about beliefs and commitment” and “is a function of a particular stance, perspective, or intention.”²⁰ Also unlike information, knowledge is closer to action; the final intellectual asset required for planning or implementing solutions to problems.²¹

Organizationally, knowledge tacitly or explicitly derives from information through individuals or groups as either a manageable process or asset.²² Tacit knowledge, which has both technical and cognitive dimensions, is personal, contextual, non-tangible, or typically within the mind of the knower such as “know-how”, mental models, heuristics, intuition, innate intelligence or the ability to reason.²³ Tacit knowledge predominantly derives from experience and practice, and is a resource that improves the speed and effectiveness of decision-making and problem solving. Explicit

knowledge, on the other hand, is systematic, formal and something expressible, capable of codification, or documentable in some form of media.²⁴ Tacit and explicit knowledge, however, do not exist as separate or discreet entities within organizations. According to pioneering experts within the field of organizational knowledge, Ikujiro Nonaka and Hirotaka Takeuchi, tacit and explicit knowledge interact, known as organizational knowledge creation, through four modes of “knowledge conversion” referred to as Socialization (tacit to tacit), Externalization (tacit to explicit), Combination (explicit to explicit), and Internalization (explicit to tacit)—the SECI model.²⁵

Knowledge Management as a Strategic Enabler

Increasingly over the past decade, the concept and practice of Knowledge Management as a mechanism to improve organizational performance pervades organizational literature and focus.²⁶ In general, KM encompasses the “capture and/or creation, sharing and dissemination, and acquisition and application” of knowledge.²⁷ Practitioners view knowledge as an increasingly valuable in-tangible commodity due, in large part, to pioneering works by authors such as Peter Drucker who, in 1993, introduced knowledge and the “knowledge worker” as the “basic economic resource” of society.²⁸ However, a majority of KM research, investment and application generally occurs within the private sector (one exception being the U.S. military) where the value of KM includes increased innovativeness, better decision-making, reduced costs, and faster responsiveness.²⁹ Today, the private sector predominantly views KM as critical to increasing the “capacity to integrate and apply distributed knowledge to create agility, responsiveness, and adaptivity” in a complex and uncertain business environment.³⁰ It is a business environment characterized by the geographically unconstrained transfer

and exchange of capital, products, services, information, and knowledge throughout a global network of independent and interdependent firms, enterprises, and consumers. Within the private sector, thus, KM delivers a sustainable competitive advantage critical to meeting the demands and challenges of an interconnected, complex and uncertain globalized business environment.³¹

Contextually, the strategic value of KM within the public sector parallels that of the private sector albeit not profit or competition-driven. Explicit and tacit knowledge within the public sector is equally, if not more, important as public sector organizations are primarily knowledge-intensive.³² As such, numerous public sector organizations were early to adopt and continue to leverage KM as a strategic enabler. Many U.S. federal agencies, such as the DOD, have well established KM technologies, tools and programs geared toward managing a vast array of data and information.³³ One of the most recognized in KM literature is the U.S. Army's After Action Review (AAR) and Center for Army Lessons Learned (CALL) programs.³⁴ Leveraging the success and effectiveness of CALL and other programs, the Army is increasing its focus on KM. In July 2008, the Chief of Staff and Secretary of the Army jointly issued a memorandum promulgating the Army's 12 Knowledge Management Principles as a "first step" toward developing an "enterprise approach" to KM from the "cultural, process change, and technical" perspectives.³⁵ Other well-recognized programs within DOD include the U.S. military knowledge portals such as Army Knowledge Online (AKO), Navy Knowledge Online (NKO), and Defense Knowledge Online (DKO) that provide information, communication, collaboration, decision support, education, and training environments for a globally distributed workforce.³⁶ In addition to portals, the U.S. military is

leveraging KM communities of practice to increase collaboration, build expertise, expedite information flow, and improve decision-making and problem solving.³⁷ The Air Force Material Command (AFMC) pioneered KM within the Air Force (AF) promoting communities of practice as a “key technique across the AF.”³⁸ These DOD uses of KM are by no means comprehensive and represent only a few examples. Overall, DOD KM techniques, tools, and practices span a full range of functions including acquisition, intelligence, logistics, and operations with current and future trends moving toward Joint and “cross-service integration.”³⁹

Within the U.S. public sector, the horrific terrorist attacks of September 11, 2001, represent the most poignant lesson in the criticality of government knowledge management and coordinated action.⁴⁰ The lessons learned from these attacks resulted in President George W. Bush establishing the Department of Homeland Security (DHS) to rectify critical knowledge sharing and coordination gaps.⁴¹ More recently, knowledge management is receiving a renewed National Security and interagency strategic focus as lessons emerge from the significant security and stability challenges faced in Iraq and Afghanistan. An April 2008 RAND SSTR study regarding U.S. civilian personnel identifies KM as a critical component for driving “continuous performance improvement by identifying and addressing gaps in effective leadership and implementing and maintaining programs that capture organizational knowledge and promote learning.”⁴² Additionally, in November 2008 the Project on National Security Reform identified “enhancing knowledge management across all components of the national security system” as a core reform.⁴³ As evidenced by the relatively recent focus

on KM at the national strategic level, KM is receiving increasing recognition as a strategic enabler across the spectrum of U.S. public sector activities.

Aside from the military element of national power, within the public sector realm there is a primary focus on addressing or managing social or public problems, characterized as wicked, where knowledge is integral to structuring or understanding these problems.⁴⁴ Specific to SSTRO, the problem sets faced by the multi-organizational network represent the full spectrum of public issues including political, economic, infrastructure, informational, social, humanitarian, and legal, often within societies marked by fledgling governance and reduced security. Regarding the security and stability aspects of SSTRO, U.S. Army doctrine recognizes KM as “key to understanding and exists to help commanders make informed, timely decisions despite the complexity inherent in stability operations.”⁴⁵ A specific, present day manifestation is the focus Multi-National Corps-Iraq (MNC-I) is placing on KM as a critical enabling capability for operations in Iraq.⁴⁶ However, the multi-organizational network responsible for SSTRO, which in many regards is similar to the complex networks found in the global business environment, must synergize efforts and actions across the spectrum of SSTRO given the wicked nature of problems faced. As such and given the spectrum of problems, KM use and focus must transcend only certain departments or organizations to the whole of U.S. government with SSTR capabilities and responsibilities.⁴⁷ As articulated by the Chairman of the Joint Chiefs of Staff, even the success of future military operations “will require the integrated application of all the instruments of national power.”⁴⁸ Derived tactical, operational, and strategic tacit and explicit knowledge within the SSTR network, thus, become critical dynamic strategic

resources that SSTR organizations and the network as a whole must manage. It is the accumulated, largely tacit knowledge that enables the expanding, shared SSTR knowledge base necessary for continuous collective learning, increased problem solving capacity, and improved responsiveness, adaptability, and decision-making.

Managing SSTRO knowledge as a resource within the multi-organizational network, however, presents three primary challenges. These challenges, though, are also the primary justifications for KM as a strategic enabler. First, tacit knowledge is difficult to capture, share, and if possible, make explicit; doing so takes focus and resources and is subject to individual and organizational cultural and social dynamics.⁴⁹ However, the knowledge transfer speed and effectiveness required for responsiveness, adaptability and agility in complex and uncertain environments requires rapid and effective knowledge transfer and sharing.⁵⁰ Rapid transfer and sharing must include both tacit and explicit knowledge, but realizing this strategic capability is significantly easier with explicit knowledge. Second, in a discontinuous member multi-organizational environment, individual tacit and explicit knowledge ebbs and flows as individuals rotate in and out of organizational positions within the network. Continually expanding and accessing the collective network's knowledge, however, improves problem solving capacity, responsiveness, and decision-making.⁵¹ Finally, leveraging SSTRO capabilities from multiple, globally located organizations results in geographical and organizational knowledge dispersion. Further, organizations within the responsible network vary in technologies, size, structure, cultural values, policies and procedures.⁵² Effectively addressing SSTRO challenges and achieving unity of action and effort, however, requires effective knowledge sharing and collaboration throughout the multi-

organizational network. In this overall context, despite the significant challenges to KM implementation and use, KM represents a powerful strategic enabler for meeting the demands and challenges of SSTRO in a VCUA environment.

CSTC-A and the Intelligent Complex Adaptive System (ICAS) KM Model

Overall, the mission of the Combined Security Transition Command-Afghanistan (CSTC-A) is to “plan, program and implement structural, organizational, institutional and management reforms of the Afghanistan National Security Forces (ANSF)” in partnership with the Government of the Islamic Republic of Afghanistan and the international community.⁵³ CSTC-A accomplishes its SSTRO mission through advisors, mentors and trainers to the Afghan Ministries of Defense and Interior, as well as an internal staff to manage the planning and programming efforts required to organize, man, train, equip, and build facilities for the ANSF. As a United States Central Command (USCENTCOM) organization, CSTC-A must coordinate its efforts with the NATO-led International Security Assistance Force (ISAF) and the U.S. Embassy.⁵⁴ Understanding this, collaboration and knowledge sharing are essential to CSTC-A mission accomplishment.

Key components of the CSTC-A SSTRO mission are planning and programming for ANSF generation including manning, equipping, and building facilities. Shared responsibilities necessitate synchronization across U.S. and ISAF organizations to effectively train, field, and equip Afghan National Army (ANA) units and Afghan National Police (ANP) forces. Component members of the CSTC-A staff primarily accomplish assigned tasks through direct internal interaction with other members of the staff, as well as direct external interaction with corresponding component members of ISAF and

other U.S. organizations. Equipping the ANSF, for example, requires internal interaction between CSTC-A CJ7, CJ4, CJ8, CJ-Engineering, the CSTC-A Deputy Commanding General for ANA and ANP development, the CSTC-A Deputy Commanding General, and the CSTC-A Commanding General. Externally, ANSF equipping requires interactions with staff members from the ANA and ANP, Afghan Ministries of Defense and Interior, ISAF, the Defense Security Cooperation Agency (DSCA), U.S. Army G8, and USCENTCOM J4. Equipping the ANSF also requires periodic external interactions with the DOD Inspector General and the U.S. Congress Government Accountability Office (GAO) as part of their accountability and oversight functions. Due to the VCUA environment associated with SSTRO, the duration and extent of interactions is extremely dynamic and often varies depending on internally and externally driven changes to goals, policies, priorities, and strategic focus.

Viewed through a KM lens, the description of CSTC-A within its strategic and operational environment mirrors that of an Intelligent Complex Adaptive System (ICAS).⁵⁵ As such, the ICAS KM model is useful in identifying the criticality of KM within the CSTC-A construct and specifically by using the five key processes within the model of “understanding, creating new ideas, solving problems, making decisions, and taking actions to achieve desired results.”⁵⁶ CSTC-A performs these processes through continuously evolving interaction with key organizations and stakeholders. For example, CSTC-A purchases ANSF equipment through the DSCA and associated U.S. military service organizations as part of the Foreign Military Sales (FMS) program. As part of the CSTC-A CJ-4 equipping mission, an equipment procurement “sub-system” forms to address the full range of related activities. These activities include

requirements definition (understanding); identifying alternatives when specific equipment is unavailable or delivery schedules do not support operational and strategic requirements (creating new ideas and problem solving); signing Memorandums of Agreement (MOAs) based on equipment types and quantities being purchased (making decisions); and executing and monitoring contracts and delivery schedules (taking actions to achieve desired results). Shared knowledge is central to these processes as it represents the critical organizational or network resource that enables effective action in dynamic, complex and uncertain environments.⁵⁷

The equipping example described above represents one of many CSTC-A sub-systems formed to ensure mission accomplishment. However, using the ICAS KM model describes the adaptive nature of CSTC-A as staff “sub-systems” dynamically form and evolve to address SSTRO problems or issues. Internal and external organizational cooperation and collaboration are essential to achieving unity of action and effort. Among the challenges, however, is knowledge attenuation as members of the CSTC-A staff, as well as other organizations, frequently rotate in and out of these sub-systems due to U.S. and coalition military deployment cycles, which can range from six to 15 months, or civilian position transfers. Knowledge attenuation significantly affects organizational effectiveness when key individuals or leaders within the sub-system ineffectively transfer critical experience-based knowledge to follow-on members. Knowledge “vacuums” are frequent as new members acquire or create sufficient knowledge to add value to sub-system efforts and performance.

The ICAS KM model also identifies eight organizational characteristics useful in analyzing CSTC-A through a KM lens. As depicted in Figure 1, these characteristics,

which emerge from the nature of the organization, include organizational intelligence, shared purpose, selectivity, optimum complexity, permeable boundaries, knowledge centrality, flow, and multidimensionality.⁵⁸ Overall, these characteristics describe how flexibly an organization, within its environment, applies the right knowledge at the right time to attain goals.⁵⁹ Within the ICAS model and specific to CSTC-A, these characteristics manifest through hierarchical and sub-system interactions that facilitate vertical internal knowledge flows and external horizontal knowledge flows throughout all levels of the organization. Further, information technology tools such as e-mail, video conferencing, shared portals, and meetings enable these knowledge flows and communicate goals, strategic and operational direction, and priorities. Additional enablers include training, personnel skill alignment, and organizational agility critical to effectively responding to the dynamic external and internal environments. Overall, the ICAS model describes CSTC-A knowledge management through its capacity and ability to solve complex problems as well as make and implement decisions to achieve operational and strategic goals.⁶⁰

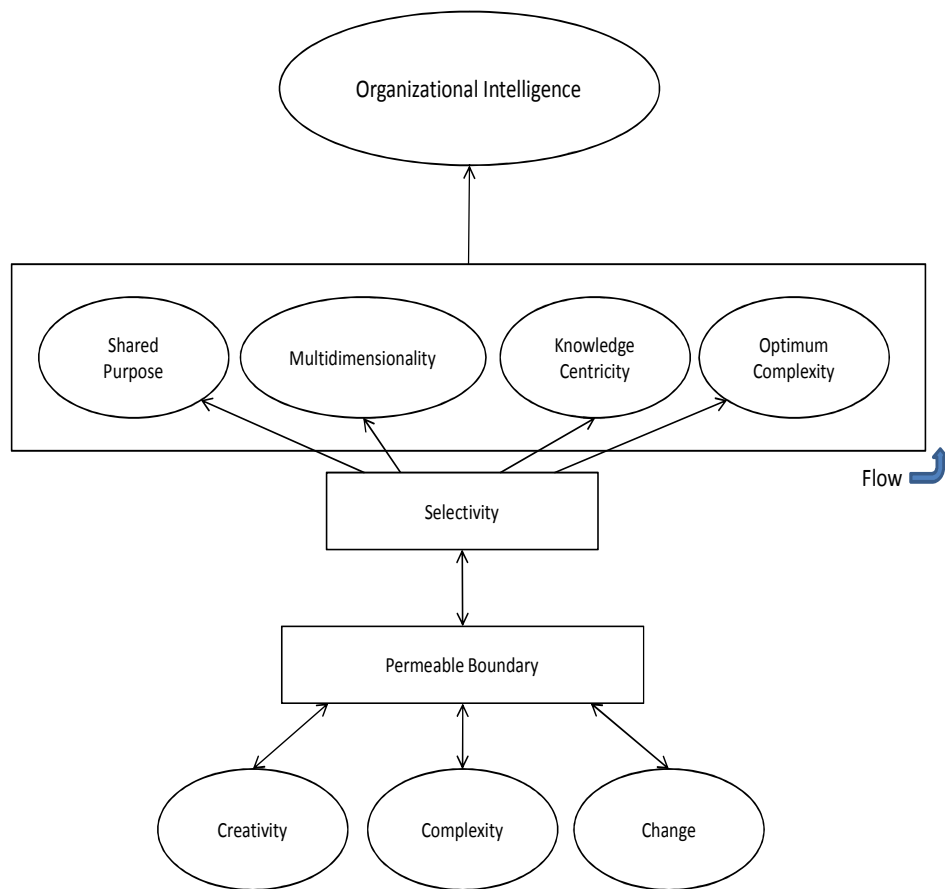


Figure 1. Overview of the ICAS Model⁶¹

Socio-Cultural Implications for Knowledge Management

The “first generation” of KM, which evolved to roughly the mid-1990s, neglected much of the socio-cultural aspects of knowledge.⁶² Two studies completed in the late 1990s identified culture as one of the main barriers to KM implementation.⁶³ During this first generation, KM efforts largely concentrated on information technology and “converting tacit to explicit knowledge” that was more easily shared through information systems.⁶⁴ Consequently, despite significant codification and technology investments, ineffectiveness and failure characterized many KM endeavors. Over the past decade, however, the second-, third-, or “next-generation” of KM study and practice increasingly focus on socio-cultural aspects of KM as organizational knowledge derives from people

and is subject to group and social dynamics such as organizational culture.⁶⁵ These dynamics significantly increase in complexity with multi-organizational networks and contextually, the introduction of Complex Adaptive Systems and Chaos theories in later generation KM models proves instrumental in understanding the role of KM in organizations.⁶⁶ However, organizational culture remains a key determinant to KM success as it affects the spectrum of knowledge “capture and/or creation, sharing and dissemination, and acquisition and application” activities.⁶⁷

Organizational knowledge is primarily tacit and as such requires individual willingness to share and the ability to effectively articulate or transfer what is in individual minds.⁶⁸ Further, tacit knowledge is more prevalent in increasingly complex environments and problems.⁶⁹ Considering that tacit knowledge sharing is the basis for organizational knowledge creation, the social interaction that enables tacit knowledge sharing becomes critical.⁷⁰ Organizational cultures and subcultures serve as a governing mechanisms for this interaction and are key components of “ensuring that critical knowledge and information flow within an organization.”⁷¹ Culture dynamically manifests in how organizations value trust, openness, internal and external knowledge, change, innovation, learning, and collaboration. Trust is fundamental to internal and external knowledge sharing and can significantly influence the extent to which individuals are willing to share knowledge.⁷² Captured knowledge, ideas, collaboration, and learning contribute to and enhance knowledge creation, sharing, acquisition and application by increasing organizational memory, absorptive and problem solving capacities, and innovation.⁷³ By extension, culture is often a critical enabler to improved organizational performance in complex environments. Culture also affects the

effectiveness of multi-organizational network environments across the dimensions of relationships, accessibility, experience, language, values, and interests.⁷⁴ Contextually, thus, organizational culture is an essential element of KM yet often presents significant barriers to effective KM implementation and use.

Overcoming Cultural Barriers

Although cultural barriers to KM efforts cover a broad spectrum, three primary categories emerge. The first category is barriers to knowledge sharing and includes trust, collaboration, social capital, and language. The second category is barriers to knowledge acquisition and includes learning, receptiveness, and absorptive capacity. The third category is barriers to application and includes organizational risk aversion and intolerance. Due to the nature of knowledge in organizations, these categories are not discreet and significantly influence one another. Further, all of these cultural barriers exist to lesser or more degrees within and across the U.S. DOD and interagency environment. Given that organizational culture is the “medium in which organizations reside,” changing culture is both a difficult and lengthy process.⁷⁵ Implementing and using KM, however, invariably necessitates cultural change. Resultantly, resistance is inevitable and presents an obstacle or block to effective or successful change.⁷⁶ Resistance occurs from both individuals and groups which makes addressing resistance challenging.⁷⁷ If unaddressed, however, resistance can derail a change effort and may result in the unintended consequences of negative organizational turmoil, employee dissatisfaction, or the necessity to refocus a change effort toward damage control vice successfully implementing the required change. As

such, understanding and overcoming resistance must be an integral part of any KM organizational change strategy.

Overall, the cultural barriers to knowledge sharing center on knowledge creation and capture. The primary barrier to knowledge sharing is lack of trust.⁷⁸ Trust develops and improves through social interaction, which is the basis for knowledge creation. Accordingly, organizational cultures that limit or discourage social interaction jeopardize knowledge creation and, by extension, knowledge management initiatives overall.⁷⁹ Collaboration, or the extent to which organizations leverage combinative intellectual efforts in achieving goals, also affects knowledge sharing and includes the organizational components of epistemology and identity.⁸⁰ Epistemology refers to the “nature” and perspective of knowledge within an organization or network—either objectivist (i.e., knowledge as an object, valuing explicit over tacit) or practice-based (i.e., knowledge as embedded in practice and socially constructed).⁸¹ Organizations with an objectivist perspective tend not to value the social interaction and communication critical to collaboration and knowledge sharing.⁸² Additionally, identity refers to the extent to which the organization or network share a sense of purpose or direction.⁸³ Lacking a shared identity decreases the likelihood of knowledge sharing, which is essential to effective collaboration.⁸⁴ Related to collaboration, social capital is “the stock of relationships, context, trust, and norms that enable knowledge sharing behavior.”⁸⁵ These relationships often are contingent on internal and external politics as well as perceptions of knowledge as a source of power, which can erode organizational trust and, thus, knowledge sharing.⁸⁶ Finally, language encompasses the technologies, vocabularies, and mental models or “frames of reference” within organizations.⁸⁷

Differences in technologies, vocabularies, and underlying assumptions limit the effectiveness of communication and knowledge sharing; however, these differences typically exist within organizations and across multi-organizational networks.

The barriers to knowledge acquisition center on understanding, or contextualizing, knowledge relative to the knowledge needs of the organization or network.⁸⁸ Individual and organizational learning is inherent in knowledge acquisition and is critical to expanding the capacity of organizations or networks to understand and recognize knowledge deficiencies, obsolescence, and opportunities in addressing or solving problems.⁸⁹ Organizational cultures that inhibit learning also limit the capacity of organizations to adapt, develop, and change based on experience-derived knowledge.⁹⁰ A second cultural barrier to knowledge acquisition is the lack receptiveness to internally and externally generated ideas, such as a “not-invented here syndrome.”⁹¹

Organization cultures characterized by a lack of receptiveness significantly limit how organizations contextualize new knowledge relative to their organization as well as implement change based on lessons learned and in response to environmental demands.⁹² The final cultural barrier to knowledge acquisition is low or lacking absorptive capacity within organizations. Absorptive capacity, or openness to change and innovation, relates to existing internal and external knowledge and determines how effectively organizations understand and leverage knowledge as a mechanism for successful change.⁹³ Organization cultures that do not value openness, learning, or innovation lack in absorptive capacity and are ineffectual in the change required for effective KM implementation and use.

Finally, the barriers to application focus on how organizations use or apply knowledge in decision-making, problem solving, or change efforts. The first cultural barrier to knowledge application is risk aversion. Risk-averse organizations are reluctant to embrace environmental uncertainty and the innovation and creativity required to adapt in achieving desired results.⁹⁴ Risk-averse organizational cultures are also less likely to value or apply unproven knowledge as part of decision-making or problem solving processes. Further, risk aversion determines the degree to which organizational leaders will undergo change.⁹⁵ The more risk averse the organizational culture, the lesser the degree of change organizational leaders are willing to undergo.⁹⁶ The final cultural barrier to knowledge application is intolerance for mistakes or a perceived need for help.⁹⁷ Intolerant cultures are less likely to embrace collaboration, as well as apply new or unproven knowledge in decision-making or problem solving.⁹⁸ Organizational intolerance stifles knowledge base growth and resultantly limits effective KM use as a strategic enabler.

Overcoming cultural barriers to knowledge creation, acquisition, and application requires a threefold strategic leader focus. First, leaders must provide an organizational vision that incorporates knowledge and learning.⁹⁹ Providing a vision is the “primary task of strategic leaders” and “sets the long-term direction for an organization.”¹⁰⁰ In the context of KM, related tasks are to communicate, develop, and implement the vision in a way that promotes inter- and intra-organizational interaction and relationship building.¹⁰¹ Second, leaders must develop and shape an organizational culture that values knowledge, collaboration, learning, and innovation. Organizational culture “supports and helps to communicate” the vision and is at the foundation of KM implementation

and use.¹⁰² Organizational cultures that value knowledge, collaboration, learning, and innovation create synergistic and mutually supportive environments where these characteristics thrive.¹⁰³ In shaping organizational cultures, KM tools such as social network analysis assist strategic leaders in understanding knowledge flows within and between organizations and provide a framework for identifying where gaps or barriers exist.¹⁰⁴ Once identified, leaders can focus resources and efforts in bridging knowledge gaps and overcoming identified barriers. Finally, strategic leaders must build and shape joint, interagency, and multi-national relationships that enable and encourage knowledge sharing, acquisition, and application.¹⁰⁵ These relationships are critical to realizing a whole of government KM approach and leveraging the collective capabilities of the multi-organizational network in achieving SSTRO unity of action and effort.

Recommendations

The preceding analysis explores KM as a strategic SSTRO enabler within an internal multi-organizational network environment and external VCUA environment. Knowledge obtained from conducting SSTRO and through addressing the myriad of associated wicked problems is a dynamic strategic resource requiring effective internal and cross-organizational management. As such, KM provides a critical “deliberate and systemic” enabling mechanism for coordinating and leveraging the “people, processes, technology, and organizational structure” for synergistic “knowledge creation, sharing, and application” in successfully executing SSTRO.¹⁰⁶ The analysis contained herein also explores cultural barriers to KM implementation and use. Previous KM initiatives largely failed due to a primary focus on technology and knowledge codification while neglecting the socio-cultural aspects of KM that are integral to KM success. In this

regard, it is critical for strategic leaders to focus on overcoming prohibitive cultural barriers as part of any KM endeavor. In the context of the overall analysis provided herein, three specific recommendations follow.

First, to meet the near-term challenges associated with SSTRO, the U.S. Department of Defense and the U.S. Department of State Office of the Coordinator for Reconstruction and Stabilization (S/CRS), under the authority granted in NSPD 44, must develop a formally recognized and KM-enabled SSTR community of practice.¹⁰⁷ The reasons for this are twofold. First, communities of practice facilitate the trust-building social construct necessary for increased tacit and explicit knowledge sharing and capture, accelerated learning, improved innovation, and more efficient and effective strategy implementation.¹⁰⁸ Second, communities of practice help mitigate negative knowledge attrition and enhance, through improved knowledge sharing within the network, the derived utility of other knowledge processes and KM best practices such as AARs and lessons learned.¹⁰⁹ A comprehensive social network analysis (SNA) should precede establishing the community to ensure effective capture and gap analysis of knowledge flows within the network. Further, strategic leaders within responsible SSTR organizations must champion the community and drive shared vision, norms, values, language, change, and investment to achieve synergistic accomplishment of objectives, goals, and overall SSTRO strategy.

Second, given the increasingly widespread recognition of KM as a strategic enabler, the collective National Security apparatus must develop and implement a whole of government KM strategy. The January 2009 *U.S. Government Counterinsurgency Guide* clearly articulates the primary justification for a whole of

government KM strategy given “one of the most critical yet pervasive shortcomings that interagency operations face is the failure to manage and share knowledge.”¹¹⁰ A comprehensive strategy must encompass all facets of KM, specifically people, processes, technology, and organizational structure, and must begin with strategic leadership. As expressed by organizational management author Peter Drucker,

One does not ‘manage’ people. The task is to lead people. And the goal is to make productive the specific strengths and knowledge of each individual.¹¹¹

Leadership is critical to KM strategy development and implementation as it drives the vision, cultural and structural change, process re-engineering, and technology investment essential to KM effort success.¹¹² Also critical are people as knowledge “exists within people, part and parcel of human complexity and unpredictability.”¹¹³ A whole of government KM strategy must first focus on socio-cultural aspects of KM, with process, technology, and structural aspects changed or designed to support.¹¹⁴ Further, leveraging ongoing and planned KM efforts and lessons learned, including those derived from developing a SSTR community of practice, is essential to efficient and effective development of a more holistic strategy. Through holistic and effective implementation and use across and within the spectrum of U.S. agency functions, KM provides an integral and unifying tool for achieving national security objectives.

Finally, the U.S. Department of Defense, the U.S. Department of State, as well as the broader interagency must focus on becoming learning organizations. Learning organizations and “an organizational culture and structure that supports learning and the sharing and use of knowledge” are critical success factors in KM implementation and use.¹¹⁵ Additionally, learning organizations emphasize shared vision, systems thinking, communities of practice, a learning culture, less hierarchical or more “self-

organizing” structures, and an external environment focus.¹¹⁶ These characteristics enable what Nonaka and Takeuchi metaphorically refer to as a “hypertext” organization, or one that leverages combinative and complementary bureaucracy and task force efficiencies and effectiveness.¹¹⁷ Essentially, it is an organization with the “strategic ability to acquire, create, exploit, and accumulate new knowledge continuously and repeatedly in a cyclical process.”¹¹⁸ Thus, focusing on becoming learning organizations, in concert with KM implementation and use, will significantly improve U.S. federal agency agility, responsiveness, innovation, and decision-making in addressing and managing the myriad of challenges in today’s strategic environment.

Conclusion

The U.S. faces an increasingly complex and uncertain world typified by a host of wicked problems. The ongoing SSTRO efforts in post-conflict Iraq and Afghanistan are but one example of the challenges faced in this environment and one that clearly highlights the critical role that whole of government collaboration and knowledge sharing play in achieving strategic success. In responding to this environment, KM provides a powerful strategic enabler that facilitates improved collective agility, responsiveness, innovation, decision-making, and continuously expanding long-term problem solving capacity. Accordingly, U.S. federal agencies are increasingly focusing on KM to further develop these strategic competencies—competencies that position the U.S. to more effectively meet U.S. national security objectives. Realizing KM as a strategic enabler, however, requires overcoming prohibitive cultural barriers. Foremost, this necessitates strategic leader focus as leadership drives the vision, culture, and relationships required for continuously improved knowledge sharing, acquisition, and application. Including

and beyond SSTRO, overcoming barriers transcends organizational boundaries as responsibility for achieving unity of effort and overall strategic success falls on networks of knowledge and capabilities. As such, it is imperative that strategic leaders collectively pursue a whole of government KM strategy in concert with developing learning organizations. In today's environment, knowledge and continuous learning are vital strategic resources we can no longer afford to lose.

Endnotes

¹ Horst W. J. Rittel and Melvin M. Webber, "Dilemmas in General Theory of Planning," *Policy Sciences* 4 (1973): 155-169. See also: Jeff Conklin, "Wicked Problems and Social Complexity," in *Dialogue Mapping: Building Shared Understanding of Wicked Problems* (Chichester, England: John Wiley & Sons, 2006), 3-23. A discussion of ill-structured problems may be found in U.S. Department of the Army, *Commander's Appreciation and Campaign Design*, Training and Doctrine Command Pamphlet 525-5-500 (Fort Monroe, VA: U.S. Department of the Army, January 28, 2008), 9-11.

² COL Stephen A. Shambach, ed., "The Strategic Leadership Environment", *Strategic Leadership Primer*, 2nd ed. (Carlisle Barracks, PA: U.S. Army War College, Department of Command, Leadership and Management, 2004), 12-13.

³ For the purposes of this paper, SSTR encompasses those activities, missions, and efforts as outlined or defined in the following sources and references embedded in these sources:

George W. Bush, *National Security Presidential Directive/NSPD-44* (Washington, D.C.: The White House, 7 December 2005), 1-6.

U.S. Department of Defense, *Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations*, Directive 3000.05 (Washington, D.C.: U.S. Department of Defense, November 28, 2005), 1-11.

COL David B. Haight, *Preparing Military Leaders for Security, Stability, Transition and Reconstruction Operations*, Strategy Research Project (Carlisle Barracks, PA: U.S. Army War College, March 30, 2007), 2.

⁴ Bush, *National Security Presidential Directive/NSPD-44*, 2.

⁵ Rahinah Ibrahim and Mark Nissen, "Discontinuity in Organizations: Developing a Knowledge-Based Organizational Performance Model for Discontinuous Membership," *International Journal of Knowledge Management* 3, no. 1 (January-March 2007): 10-28.

⁶ Edward P. Weber and Anne M. Khademian, "Wicked Problems, Knowledge Challenges, and Collaborative Capacity Builders in Network Settings," *Public Administration Review* 68, no. 2 (March-April 2008): 336.

⁷ Ibid., 334-339.

⁸ U.S. Department of the Army, *Commander's Appreciation and Campaign Design*, 13-14.

⁹ Beatriz Munoz-Seca and Josep Riverola, *Problem-Driven Management: Achieving Improvement in Operations through Knowledge Management* (New York, NY: Palgrave Macmillan, 2004), 6.

¹⁰ Jozef Loermans, "Synergizing the Learning Organization and Knowledge Management," *Journal of Knowledge Management* 6, no. 3 (2002): 285-294.

¹¹ Lena Aggestam, "Learning Organization or Knowledge Management – Which Came First, The Chicken or the Egg?," *Information Technology and Control* 35, no. 3A (2006): 299.

¹² David A. Garvin, "Building a Learning Organization," *Harvard Business Review on Knowledge Management* (Boston, MA: Harvard Business School Publishing, 1998), 51.

¹³ Aggestam, "Learning Organization or Knowledge Management – Which Came First, The Chicken or the Egg?," 298-300.

¹⁴ Peter Senge, *The Fifth Discipline: The Art & Practice of The Learning Organization* (New York, NY: Currency Doubleday, 1990), 6-11.

¹⁵ Ibid., 69.

¹⁶ Chris Argyris, *Reasons and Rationalizations: The Limits to Organizational Knowledge* (New York, NY: Oxford University Press, 2004), 10.

¹⁷ Thomas H. Davenport and Laurence Prusak, *Working Knowledge* (Boston, MA: Harvard Business School Press, 1998), 5.

¹⁸ Ibid., 2.

¹⁹ Ibid., 4.

²⁰ Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge-Creating Company* (New York, NY: Oxford University Press, 1995), 58.

²¹ Davenport and Prusak, *Working Knowledge*, 6.

²² Ibid., 12.

²³ Nonaka and Takeuchi, *The Knowledge-Creating Company*, 8-9. See also: Verna Allee, *The Future of Knowledge: Increasing Prosperity through Value Networks* (Burlington, MA: Elsevier Science, 2003), 97.

²⁴ Ibid. Also, Kimiz Dalkir, *Knowledge Management in Theory and Practice* (Burlington, MA: Elsevier Butterworth-Heinemann, 2005), 8.

²⁵ Nonaka and Takeuchi, *The Knowledge-Creating Company*, 62-73. The Nonaka and Takeuchi model is referred to as the SECI model of organizational knowledge creation.

²⁶ American Productivity & Quality Center (APQC), *Retaining Valuable Knowledge: Proactive Strategies to Deal With a Shifting Work Force* (Texas: American Productivity & Quality Center, 2002), 7. A functional definition of Knowledge Management is “a systematic process of connecting people to people and people to the knowledge and information they need to effectively perform and create new knowledge. The goal of a knowledge management initiative is to enhance the performance of the organization and the people in it, through the identification, capture, validation, and transfer of knowledge.”

²⁷ Dalkir, *Knowledge Management in Theory and Practice*, 43.

²⁸ Peter F. Drucker, *Post-Capitalist Society* (New York, NY: HarperCollins, 1993), 6-8.

²⁹ Michael E. D. Koenig and T. Kanti Srikantaiah, eds., *Knowledge Management Lessons Learned: What Works and What Doesn't* (Medford, NJ: Information Today, Inc., 2004), 127.

³⁰ Amrit Tiwana, *The Knowledge Management Toolkit: Orchestrating IT, Strategy, and Knowledge Platforms* (Upper Saddle River, NJ: Prentice Hall, 2002), 6.

³¹ Davenport and Prusak, *Working Knowledge*, 15-17.

³² Annick Willem and Marc Buelens, “Knowledge Sharing in Public Sector Organizations: The Effect of Organizational Characteristics on Interdepartmental Knowledge Sharing,” *Journal of Public Administration Research and Theory* 17 (January 2007): 581.

³³ Elsa Rhoads, Kevin J. O'Sullivan, and Michael Stankowsky, “An Evaluation of Factors that Influence the Success of Knowledge Management Practices in U.S. Federal Agencies,” *International Journal of Knowledge Management* 3, no. 2 (April-June 2007): 32.

³⁴ Davenport and Prusak, *Working Knowledge*, 8. See also American Productivity & Quality Center (APQC), *Retaining Valuable Knowledge: Proactive Strategies to Deal With a Shifting Work Force*, 46. Additional information on CALL, the Battle Command Knowledge System, and other U.S. Army KM information can be accessed through the U.S. Army Combined Arms Center website at <http://usacac.army.mil/cac2/index.asp>.

³⁵ U.S. Army Chief of Staff GEN George W. Casey, Jr. and U.S. Secretary of the Army Pete Geren, “Army Knowledge Management Principles,” memorandum for distribution to U.S. Department of the Army commands, July 23, 2008. See also: U.S. Department of the Army, *Operations, Field Manual 3-0* (Washington, D.C.: U.S. Department of the Army, February 27, 2008), 7-10. The U.S. Army is incorporating KM into capstone Field Manuals. As an example, FM 3-0, *Operations*, specifically identifies KM as “the art of creating, organizing, applying, and transferring knowledge to facilitate situational understanding and decisionmaking. Knowledge management supports improving organizational learning, innovation, and performance. Knowledge management processes ensure that knowledge products and services are relevant, accurate, timely, and useable to commanders and decisionmakers.” The “Knowledge and

Information Management” section also identifies the KM components of people, processes, and technology.

³⁶ R. William Maule, “Military Knowledge Management,” *Encyclopedia of Knowledge Management*, ed. David G. Schwartz (Hershey, PA: Idea Group Reference, 2006), 628-630.

³⁷ Ibid., 628. See also: Farida Hasanali et al., *Communities of Practice: A Guide for Your Journey to Knowledge Management Best Practices* (Houston, TX: American Productivity & Quality Center, 2002), 1-7. APQC defines communities as: “Networks of people—small and large—who come together to share ideas with and learn from one another in physical and virtual space. These communities of practice, of interest, and of learning are held together by a common purpose or mission. They are sustained by a desire to share experiences, insights, and best practices.”

³⁸ Summer E. Bartczak, Jason M. Turner, and Ellen C. England, “Challenges in Developing a Knowledge Management Strategy: A Case Study of the Air Force Material Command,” *International Journal of Knowledge Management* 4, no. 1 (January-March 2008): 49.

³⁹ Maule, “Military Knowledge Management,” 628.

⁴⁰ Rhoads, O’Sullivan and Stankowsky, “An Evaluation of Factors that Influence the Success of Knowledge Management Practices in U.S. Federal Agencies,” 32. See also: Thomas H. Kean and Lee H. Hamilton, *The 9/11 Commission Report* (Washington, D.C.: National Commission on Terrorist Attacks Upon the United States, 2004), 416-419, <http://www.9-11commission.gov/report/911Report.pdf> (accessed February 28, 2009). Section 13.3 specified (page 417) promoting a “need to share culture of integration” and included the recommendation “information procedures should provide incentives for sharing, to restore a better balance between security and shared knowledge.”

⁴¹ Ibid.

⁴² Terrence K. Kelly and Thomas S. Szayhna, *Stabilization and Reconstruction Staffing: Developing U.S. Civilian Personnel Capabilities* (Santa Monica, CA: RAND Corporation, 2008), 68.

⁴³ Project on National Security Reform, *Forging a New Shield* (Washington, DC: Project on National Security Reform, November 2008), A8-697.

⁴⁴ Rittel and Webber, “Dilemmas in General Theory of Planning,” 160-162.

⁴⁵ U.S. Department of the Army, *Stability Operations*, Field Manual 3-07 (Washington, D.C.: U.S. Department of the Army, October 6, 2008): 4-5. U.S. Army doctrine on knowledge management is found in U.S. Department of the Army, *Knowledge Management Section*, Field Manual 6-01.1 (Washington, D.C.: U.S. Department of the Army, August 29, 2008). See also: U.S. Department of the Army, *Operations*, Field Manual 3-0 (Washington, D.C.: U.S. Department of the Army, February 27, 2008), 7-10.

⁴⁶ LTC Howard Lim, “Knowledge Management at MNC-I: Trends, Challenges, and Opportunities,” October 2008, brief linked from the *United States Army Combined Arms Center Home Page, Center for Army Lessons Learned* at <http://usacac.army.mil/cac2/call/index.asp>.

⁴⁷ Rhoads, O'Sullivan and Stankowsky, "An Evaluation of Factors that Influence the Success of Knowledge Management Practices in U.S. Federal Agencies," 35.

⁴⁸ U.S. Joint Chiefs of Staff, *Capstone Concept for Joint Operations Version 3.0* (Washington, D.C.: U.S. Joint Chiefs of Staff, January 15, 2009), 6.

⁴⁹ Donald Hislop, *Knowledge Management in Organizations: A Critical Introduction* (New York, NY: Oxford University Press, 2005), 44-54.

⁵⁰ Chyan Yang and Hsueh-Chuan Yen, "A Viable Systems Perspective to Knowledge Management," *Kybernetes* 36, no. 5/6 (2007): 644-648.

⁵¹ S. Vassiliadis, M. Kohne, and J. Barber, "Are Networks the Obvious Choice? When to Choose the Network Option," in *Getting Real about Knowledge Networks* (New York, NY: Palgrave Macmillan, 2006), 109-110.

⁵² *Ibid.*, 183-207.

⁵³ *The Combined Security Transition Command – Afghanistan Home Page*, <http://www.cstc-a.com> (accessed 14 November 2008).

⁵⁴ *North Atlantic Treaty Organization (NATO) International Security Assistance Force (ISAF) Home Page*, <http://www.nato.int/isaf/> (accessed December 10, 2008). Effective October 5, 2006, ISAF assumed overall responsibility for Afghanistan security and stability efforts.

⁵⁵ Dalkir, *Knowledge Management in Theory and Practice*, 69. The definition of complex adaptive systems is "organizations that are composed of a large number of self-organizing components, each of which seeks to maximize its own specific goals but which also operates according to the rules and context of relationships with the other components and the external world." Component members of the CSTC-A staff are empowered to self-organize but are hierarchically part of the CSTC-A organization. As such the complex adaptive system represented by CSTC-A is considered intelligent.

⁵⁶ *Ibid.*, 70.

⁵⁷ *Ibid.*, 69-70.

⁵⁸ *Ibid.*, 70-71.

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

⁶¹ *Ibid.*, 71.

⁶² Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 44.

⁶³ Gillian Wright and Andrew Taylor, "Strategic Knowledge Sharing for Improved Public Service Delivery: Managing an Innovative Culture for Effective Partnerships," in *Knowledge*

Management: Current Issues and Challenges, ed. Elayne Coakes (Hershey, PA: IRM Press, 2003), 190.

⁶⁴ Kenneth A. Grant and Candace T. Grant, "Developing a Model of Next Generation Knowledge Management," *Issues in Informing Science and Information Technology*, no. 5 (2008): 580.

⁶⁵ *Ibid.*, 580-587.

⁶⁶ Grant and Grant, "Developing a Model of Next Generation Knowledge Management," 580-587.

⁶⁷ Dalkir, *Knowledge Management in Theory and Practice*, 179. Dalkir as well as Nonaka and Takeuchi use E. Schein's (1985 and 1999) definition of organizational culture as "a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems."

⁶⁸ Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 46.

⁶⁹ Yang and Yen, "A Viable Systems Perspective to Knowledge Management," 647.

⁷⁰ Nonaka and Takeuchi, *The Knowledge-Creating Company*, 85.

⁷¹ Dalkir, *Knowledge Management in Theory and Practice*, 185.

⁷² Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 51.

⁷³ Jennifer Lewis Priestley and Subhashish Samaddar, "Multi-Organizational Networks: Three Antecedents of Knowledge Transfer," *International Journal of Knowledge Management* 3, no. 1 (January-March 2007): 87. Absorptive capacity is defined as "an organization's ability to recognize the value of external information, assimilate it and apply it to generate economic rents" and "is critical to its innovative capabilities."

⁷⁴ Andrea Back et al., eds., *Getting Real about Knowledge Networks: Unlocking Corporate Knowledge Assets* (New York, NY: Palgrave Macmillan, 2006), 129-143.

⁷⁵ Dalkir, *Knowledge Management in Theory and Practice*, 190.

⁷⁶ As inferred in John P. Kotter, *Leading Change* (Boston, MA: Harvard Business School Press, 1996), 10.

⁷⁷ John P. Kotter and Leonard A. Schlesinger, "Choosing Strategies for Change," in *Organizational Behavior and the Practice of Management*, ed. David R. Hampton, Charles E. Summer, and Ross A. Webber (Glenview, IL: Scott, Foresman and Company, 1983), 735.

⁷⁸ Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 52.

⁷⁹ *Ibid.*

⁸⁰ Sajda Qureshi, Robert Briggs, and Vlatka Hlupic, "Value Creation from Intellectual Capital: Convergence of Knowledge Management and Collaboration in the Intellectual Bandwidth Model," *Group Decision and Negotiation* 15 (2006): 209.

⁸¹ Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 13-37.

⁸² Ibid., 39.

⁸³ Priestley and Samaddar, "Multi-Organizational Networks: Three Antecedents of Knowledge Transfer," 88. Shared identity or purpose facilitates both intra- and inter-organizational knowledge sharing.

⁸⁴ Ibid.

⁸⁵ Patti Anklam, "Knowledge Management: The Collaboration Thread," *Bulletin of the American Society for Information Science and Technology* 28, no. 6 (August - September 2002): 9.

⁸⁶ Kristen Bell DeTienne, et al., "Toward a Model of Effective Knowledge Management and Directions for Future Research: Culture, Leadership, and CKOs," *Journal of Leadership & Organizational Studies* 10, no. 4 (Spring 2004): 32. See also: Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 90-92.

⁸⁷ Davenport and Prusak, *Working Knowledge*, 97. See also: Dalkir, *Knowledge Management in Theory and Practice*, 189. Dalkir makes reference to the fact that mental models are also called basic underlying assumptions and represent possibilities—managers use mental models to "diagnose problems and make decisions."

⁸⁸ Dalkir, *Knowledge Management in Theory and Practice*, 43.

⁸⁹ Munoz-Seca and Riverola, *Problem-Driven Management: Achieving Improvement in Operations through Knowledge Management*, 230-231.

⁹⁰ Nonaka and Takeuchi, *The Knowledge-Creating Company*, 45.

⁹¹ Davenport and Prusak, *Working Knowledge*, 97.

⁹² Gillian Wright and Andrew Taylor, "Strategic Knowledge Sharing for Improved Public Service Delivery: Managing an Innovative Culture for Effective Partnerships," 194-196.

⁹³ Dalkir, *Knowledge Management in Theory and Practice*, 212.

⁹⁴ Andrew P. Ciganek, En Mao, and Mark Srite, "Organizational Culture for Knowledge Management Systems: A Study of Corporate Users," *International Journal of Knowledge Management* 4, no. 1 (January-March 2008): 5-6.

⁹⁵ Janice E. Carrillo and Cheryl Gaimon, "Managing Knowledge-Based Resource Capabilities under Uncertainty," *Management Science* 50, no. 11 (November 2004): 1516.

⁹⁶ Ibid.

- ⁹⁷ Davenport and Prusak, *Working Knowledge*, 97.
- ⁹⁸ Ibid.
- ⁹⁹ Nonaka and Takeuchi, *The Knowledge-Creating Company*, 227.
- ¹⁰⁰ COL Stephen A. Shambach, ed., "Strategic Leadership Tasks", *Strategic Leadership Primer*, 2nd ed. (Carlisle Barracks, PA: U.S. Army War College, Department of Command, Leadership and Management, 2004), 44.
- ¹⁰¹ Ibid. See also: Roland K. Yeo, "Building Knowledge Through Action Systems, Process Leadership and Organizational Learning," *Foresight* 8, no. 4 (2006): 37.
- ¹⁰² Ibid., 45. See also: Dalkir, *Knowledge Management in Theory and Practice*, 185.
- ¹⁰³ Yeo, "Building Knowledge Through Action Systems, Process Leadership and Organizational Learning," 38. Collaborative cultures with open trans-boundary communication and dialogue foster knowledge sharing based on social construct that leads to systems thinking and shared vision necessary for organizational learning. Wright and Taylor, "Strategic Knowledge Sharing for Improved Public Service Delivery: Managing an Innovative Culture for Effective Partnerships," 203. Innovative cultures encourage knowledge sharing, acquisition, and application that further supports collaboration and learning.
- ¹⁰⁴ Anklam, "Knowledge Management: The Collaboration Thread," 9-10.
- ¹⁰⁵ Shambach, ed., "Strategic Leadership Tasks", 45-46.
- ¹⁰⁶ Dalkir, *Knowledge Management in Theory and Practice*, 3.
- ¹⁰⁷ Information specific to S/CRS is available at: *The United States Department of State Office of the Coordinator for Reconstruction and Stabilization Home Page*, <http://www.state.gov/s/crs/> (accessed February 17, 2009). See also: Farida Hasanali et al., *Communities of Practice: A Guide for your Journey to Knowledge Management Best Practices*, 3.
- ¹⁰⁸ Verna Allee, *The Future of Knowledge: Increasing Prosperity Through Value Networks*, 122-124. See also: Sineenad Paisttanand, L. A. Digman, and Sang M. Lee, "Managing Knowledge Capabilities for Strategy Implementation Effectiveness," *International Journal of Knowledge Management* 3, no. 4 (October-December 2007): 85.
- ¹⁰⁹ Hislop, *Knowledge Management in Organizations: A Critical Introduction*, 58-67.
- ¹¹⁰ Henrietta Fore, Robert Gates, and Condoleezza Rice, *U.S. Government Counterinsurgency Guide* (Washington, D.C.: Bureau of Political-Military Affairs, 2009), 19.
- ¹¹¹ Peter F. Drucker, *The Essential Drucker* (New York, NY: HarperCollins, 2001), 81.
- ¹¹² Steven Cavaleri and Sharon Seivert, *Knowledge Leadership: The Art and Science of the Knowledge-Based Organization* (Burlington, MA: Elsevier, Inc., 2005), 269-274. See also:

Dr. Kristen Bell DeTienne et al., "Toward a Model of Effective Knowledge Management and Directions for Future Research: Culture, Leadership, and CKOs," 34.

¹¹³ Davenport and Prusak, *Working Knowledge*, 5.

¹¹⁴ American Productivity & Quality Center (APQC), *Retaining Valuable Knowledge: Proactive Strategies to Deal With a Shifting Work Force*, 7.

¹¹⁵ Murray E. Jennex, Stefan Smolnik, and David Croasdell, "Knowledge Management Success," *International Journal of Knowledge Management* 3, no. 2 (April-June 2007): ii.

¹¹⁶ Davenport and Prusak, *Working Knowledge*, 169. See also: Aggestam, "Learning Organization or Knowledge Management – Which Came First, The Chicken or the Egg?," 298.

¹¹⁷ Nonaka and Takeuchi, *The Knowledge-Creating Company*, 160-171.

¹¹⁸ *Ibid.*, 166.